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# CLEAN DEVELOPMENT MECHANISM: CONCEPT AND GOVERNANCE IN INDIA



Ali Reja Osmani\*

May 2012<sup>†</sup>

**ABSTRACT:** *India holds the second position after China in hosting Clean Development Mechanism projects in the world. Soon after India ratified the Kyoto Protocol it constituted the Designated National Authority to host clean development projects. Most CDM projects in India are renewable based projects and the country's infrastructure for renewables has significant contribution in the success of CDM. The purpose of this paper is to understand the success of India in hosting clean development projects. Initially the paper discusses the concept of clean development mechanism and its additionality principle. How India's institutional setup, long-term national policies favoured the growth of clean mechanism. The conclusion can be drawn that despite well-established institutional framework and favourable policies, which account for all the success, India is lacking in additionality.*

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## **LIST OF ABBREVIATIONS**

BaU	Business-as-Usual
CDM	Clean Development Mechanism
CER	Certified Emission Reductions
COP/MOP	Conference of Parties Serving as Meeting of Parties to UNFCCC
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
GHG	Greenhouse Gas
HFC	Hydro Fluoro Carbon
IPCC	Intergovernmental Panel on Climate Change
NAPCC	National Action Plan on Climate Change
NCDMA	National Clean Development Mechanism
PDD	Project Design Document
PIN	Project Idea Note
PP	Project Participant
SAPCC	State Action Plan on Climate Change
UN	United Nation
UNEP	United Nation Environment Programme
UNFCCC	United Nation Framework Convention on Climate Change
WMO	World Metrological Organisation

## 1. INTRODUCTION

*“Global warming issues have been given a serious thought in the recent times and while it has become quintessential to reduce the emission levels, an entirely new industry has emerged having great potential and opportunities for the investors. What was introduced by John Dales, economist from Canada, as tradable rights to control pollution, in 1968, is seemingly lucrative venture and is in vogue for some time now; with carbon credits, green projects, carbon footprints, sustainability reports being off-springs of the initiatives.”<sup>1</sup>*

In the 1980s, increasing scientific evidence of human interference in the global climate system raised public concern. Climate change was mounted as a political agenda around the globe. As an effort by the United Nation (UN) to provide the governments and policymakers with a clear scientific view of what is happening to world climate, in 1989 the Intergovernmental Panel on Climate Change (IPCC) was set up by the World Metrological Organisation (WMO) and the United Nation Environment Programme (UNEP).<sup>2</sup> The IPCC in its first report in 1990, concluded that the growing accumulation of GHGs in the atmosphere would *‘enhance the greenhouse effect, resulting in an additional warming of the earth’s surface’* by the next century, unless measures were taken to limit emissions. Responding to this report the UN General Assembly in December 1990 launched negotiations to formulate an international treaty on global climate protection, which later became the United Nation Framework Convention on Climate Change (UNFCCC).<sup>3</sup> The negotiations started on February 1991, lasted for 15 months and the convention was adopted on May 1992.

India signed the UNFCCC on 10<sup>th</sup> June 1992 and ratified it on 1<sup>st</sup> Nov 1993 and it has been enforced in March 1994, after being ratified by 50 countries.<sup>4</sup> On 11 December

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<sup>1</sup> Nidhi Bothra, *Carbon Credits – Unravelling Regulatory, Taxation & Accounting Issues*, Vinod Kothari & Company, <http://www.india-financing.com/Carbon%20Credits%20-%20Regulatory,%20Taxation%20&%20Accounting%20issues.pdf> (accessed on 21st April 2012)

<sup>2</sup> IPCC, [http://www.ipcc.ch/organization/organization\\_history.shtml#.T5YD2NWKIMk](http://www.ipcc.ch/organization/organization_history.shtml#.T5YD2NWKIMk) (accessed on 23rd April 2012)

<sup>3</sup> *United Nation Framework Convention on Climate Change*, opened for signature 9 May 1992, 31 ILM 849 (entered into force on 21 March 1994) (hereinafter UNFCCC)

<sup>4</sup> Climate Change, Government of India, Ministry of Environment and Forest, [envfor.nic.in/cc/india\\_unfccc.htm](http://envfor.nic.in/cc/india_unfccc.htm) (accessed on 15th April 2012)

1997 at the third Conference of Parties (COP) to UNFCCC, held in Kyoto, Japan, a Protocol<sup>5</sup> was adopted, which came in to force on 16 February 2005. The Protocol sets binding targets for 37 industrialised countries and the European community for reducing greenhouse gas (GHG) emissions by five per cent against 1990 levels over the five-year period 2008-2012.<sup>6</sup>

Since India ratified the Kyoto Protocol, it has emerged as a global leader in emission reduction through Clean Development Mechanism measures. The objective of this paper is to bring to light India's effort to fit into the CDM. The paper will give an idea of the CDM project cycle including the bodies involved in it and show how India's long-term national action plans are well suited for the mitigation of climate change and benefitting the growth of CDM in the country. The paper also tries to highlight the additionality issue in India. Additionality is the requirement that the greenhouse gas emissions after implementation of a CDM project activity are lower than those that would have occurred in the most plausible alternative scenario to the implementation of the CDM project activity.

## **2. CDM GOVERNANCE-CONCEPT**

The Kyoto Protocol to the UNFCCC was adopted in 1997 and requires developed countries and economies in transition listed in Annex B of the Protocol, to reduce their overall GHG emissions by 5.2% below 1990 levels. The Kyoto Protocol (KP) provided for three flexible market based mechanisms that enables the developed countries to meet their emission limitation and reduction commitments. These are as such:

- a. Emission Trading (ET)<sup>7</sup>
- b. Clean Development Mechanism (CDM)<sup>8</sup>
- c. Joint Implementation (JI)<sup>9</sup>

At the Seventh Conference of Parties (COP-7) held at Marrakesh, Morocco in October to November 2001, the final elements of the KP were worked out, particularly the rules

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<sup>5</sup> *Kyoto Protocol to the United Nation Framework Convention on Climate Change*, opened for signature 11 December 1997, 37 ILM 22 (entered into force on 16 February 2005) (hereinafter Kyoto Protocol)

<sup>6</sup> Kyoto Protocol, [http://unfccc.int/kyoto\\_protocol/items/2830.php](http://unfccc.int/kyoto_protocol/items/2830.php) (accessed on 15th April 2012)

<sup>7</sup> Kyoto Protocol, *Supra* note 5 Article 17

<sup>8</sup> Kyoto Protocol, *Supra* note 5 Article 12

<sup>9</sup> Kyoto Protocol, *Supra* note 5 Article 6

and procedures by which the flexible mechanism will work. The Marrakesh Accord<sup>10</sup> establishes the basic rules and procedures for operating these flexible mechanisms including CDM, as well as details on reporting and methodologies.<sup>11</sup>

As per article 12 of the Kyoto Protocol, any kind of voluntary emission reduction activity carried out in a Non Annex I country can be used by an Annex I country to meet its compliance with the emission targets set under the Protocol. This has given rise to an innovative market mechanism called Clean Development Mechanism. Every energy efficiency improvement activities will result into onsite as well as offsite GHG emission reductions and these GHG emission reductions generally qualify for the CDM.”<sup>12</sup>

The clean development mechanism (CDM) was designed to meet two objectives:

1. To help developed countries fulfil their commitments to reduce GHG emissions; and
2. To assist developing countries in achieving sustainable development and to contribute to the ‘*Ultimate Objective*’<sup>13</sup> of UNFCCC.

In order to qualify for CDM a project must deliver multiple benefits: such as credits for reducing GHG emissions to the investors and sustainable development to the developing country, which hosts the project and contributes to stabilising GHG concentrations in the atmosphere below dangerous levels.

## 2.1. Steps and Key Bodies Involved in the CDM Project Cycle

From the inception of a CDM project activity till the delivery of Certified Emission Reductions (CER), a CDM project undergoes various steps and there are some bodies

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<sup>10</sup> UNFCCC, Report of the Conference of the Parties on its Seventh Session, Held at Marrakesh from 29 October to 10 November 2001, Annex G (52), U.N. Doc. FCCC/ CP/2001/13/Add.2 (Jan. 21, 2002), [hereinafter Marrakech Accords], <http://unfccc.int/resource/docs/cop7/13a02.pdf> (accessed on 4th May 2012)

<sup>11</sup> Newell, P., *From global power politics to responsible collective governance: The transparency and inclusiveness of international climate governance institutions and processes*, Global Corruption Report – Climate Change 32, (Transparency International, London, UK: Earthscan, 2011)

<sup>12</sup> Umamaheswaran, K. & Michaelowa, A., *Additionality and Sustainable Development Issues Regarding CDM Projects in Energy Efficiency Sectors*, HWWA Discussion Paper 346, Hamburg Institute of International Economics, Germany, 2006, <http://www.econstor.eu/bitstream/10419/19374/1/346.pdf> (accessed on 19th April 2012)

<sup>13</sup> *Supra*, Note 2, UNFCCC, Article 2

which play an important role in the entire project cycle of a CDM project. Broadly speaking, the project cycle involves the following steps and bodies:

### Project Identification

A CDM project starts by identifying an idea that will reduce GHG emissions. The very initial steps require the Project Proponent or Project Participant (PP) to examine the level of emission reduction resulting from the project and to ascertain the development priorities of the host country.

### Government Endorsement

After being satisfied that the project is relevant under CDM, the project proponent prepares a Project Idea Note (PIN) and submits it to the Designated National Authority<sup>14</sup> (DNA) for endorsement.

### Project Development

The proposed project must undergo a project design phase. In this phase the PP develops a Project Design Document (PDD), in a standard format, including a description of the project, proposed baseline methodology, methodology for calculation of emissions by source and monitoring plan. Parties may submit new baseline and monitoring methodology or that which has been previously approved for use by the Executive Board<sup>15</sup> (EB).<sup>16</sup>

### Validation

The PDD is submitted for validation by a Designated Operational Entity (DOE). Validation is the process of independent evaluation of a project by the DOE as per CDM modalities and procedures and decisions of COP and EB.<sup>17</sup> The DOE is an EB accredited independent verifying agency.<sup>18</sup> It examines whether the proposed project

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<sup>14</sup> Conference of Parties serving as the Meeting of the Parties to the Kyoto Protocol (COP/MOP), *Decision 3/CMP1: Modalities and procedures for a clean development mechanism as defined in Article 12 of the Kyoto Protocol*, Annex: Modalities and procedures for a clean development mechanism (FCCC/KP/CMP/2005/8/Add.1, 30 March 2006) Section F, [29], <http://unfccc.int/resource/docs/2005/cmp1/eng/08a01.pdf#page=6> (accessed on 04<sup>th</sup> May 2012)

<sup>15</sup> Kyoto Protocol, *Supra* note 5, Article 12(4)

<sup>16</sup> *Supra* note 14, Section G [45]

<sup>17</sup> *Supra* note 14, Section G [35]

<sup>18</sup> *Supra* note 14, Section D [20]



activity fulfils all the requirements of the CDM and submit its validation report to the EB.<sup>19</sup>

### Registration

Once the PDD is validated, the validation is forwarded to the EB with a request for registration. Registration is the formal acceptance by the EB of a validated project as a CDM project activity.<sup>20</sup> The registration is deemed final eight weeks after the date of the receipt of the report unless a request for review is made by at least three members of the EB.<sup>21</sup>

### Monitoring, Verification and Certification

When the registration is done, the PP is responsible for monitoring the actual GHG emissions reduced by the project.<sup>22</sup> Verification is the independent review and ex post determination by the designated operational entity of the monitored reductions in anthropogenic emissions by sources of greenhouse gases that have occurred as a result of a registered CDM project activity during the verification period.<sup>23</sup> The PP may approach a DOE periodically to verify the actual GHG emission and certify the reduction in GHG emission. Thus Certification is the written assurance by the DOE that during a specified period the project activity has achieved the emission reduction as verified.<sup>24</sup>

### Issuance of CERs

The certification report by the DOE shall contain a request for issuance of Certified Emission Reductions to the EB, equal to the verified amount of reductions of anthropogenic emissions by sources of GHGs.<sup>25</sup> To be registered and approved for implementation, the project documentation must satisfy the independent verifier and the EB that the project will result in reductions in emissions which are additional to any that would otherwise occur in the absence of the registered CDM project.<sup>26</sup> The

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<sup>19</sup> *Supra* note 14, Section E [27]

<sup>20</sup> *Supra* note 14, Section G [36]

<sup>21</sup> *Supra* note 14, Section G [41]

<sup>22</sup> *Supra* note 14, Section H [53]

<sup>23</sup> *Supra* note 14, Section I [61]

<sup>24</sup> *Supra* note 14, Section I [61]

<sup>25</sup> *Supra* note 14, Section J [64]

<sup>26</sup> *Supra* note 14, Section G [43]

host country must also provide written confirmation that the project assists the nation to achieve sustainable development as per its development priorities.<sup>27</sup>

## 2.2. Additionality Issue of CDM Project

Article 12(5)(c) of the Kyoto Protocol provides that CERs shall be issued if based on reductions that are additional to any that would occur in the absence of the project.<sup>28</sup>

*“Additionality in the context of the UNFCCC refers to an effort that is supplemental to the Business-as-Usual (BaU) scenario in at least two areas: (i) the additionality of financial contributions of developed countries to mitigate climate change in developing countries; and (ii) the additionality of GHG emissions generated by mitigation activities.”*<sup>29</sup>

So each PP has to demonstrate the additionality of the project in the PDD. Each project must elaborate clearly the baseline scenario from which the additionality is to be measured. The baseline scenario represents the GHG emissions that would have occurred in the business-as-usual (BaU) or in the absence of the said project. The problem is that the project developer has to examine what would have happened if the project had not implemented. Therefore, sometimes the baseline scenario can lead to hypothetical assumptions, which help to inflate the amount of CERs.<sup>30</sup>

## 3. CDM GOVERNANCE IN INDIA

In the interest of the international cooperation, the Kyoto Protocol defined a role for the host countries in implementing emission reduction projects. The creation of a formal decision making body for the host country is a direct acknowledgement of the sovereign rights of the host country to regulate development within its national territory according to its particular national priorities and growth strategies.

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<sup>27</sup> Durrant, N., *Legal Response to Climate Change* 52, (Sydney, Australia: The Federation Press, 2010)

<sup>28</sup> Kyoto Protocol, *Supra* note 5

<sup>29</sup> Streck, C., *The Concept of Additionality under the UNFCCC and the Kyoto Protocol: Implications for Environmental Integrity and Equity*, [www.ucl.ac.uk/laws/environment/docs/hong-kong/The\\_Concept\\_of\\_Additionality\\_\(Charlotte\\_Streck\).pdf](http://www.ucl.ac.uk/laws/environment/docs/hong-kong/The_Concept_of_Additionality_(Charlotte_Streck).pdf) (accessed on 23rd April 2012)

<sup>30</sup> Voigt, C., *Is Clean Development Mechanism Sustainable? Some Critical Aspects*, Vol No.8 Issue. 2, CLR, 16

### 3.1. National CDM Authority

The Seventh Conference of Parties (COP-7) to the UNFCCC decided that Parties participating in CDM should designate a National Authority for the CDM and as per the CDM project cycle, a project proposal should include a written approval of voluntary participation from the Designated National Authority (the Authority) of each country and confirmation that the project activity assists the host country in achieving sustainable development. Therefore, projects implemented under the CDM are subject to approval of the DNA of the host country where the emission reduction projects are to be implemented.

Accordingly, the Government of India constituted the National Clean Development Mechanism Authority (NCDMA) by an executive order in exercise of its power conferred upon it by the Environment (Protection) Act of 1986.<sup>31</sup> The NCDMA consists of representatives of Ministries of Environment, Non-Conventional Energy, Power, Industry, Financial and External Affairs along with a representative of the Planning Commission.<sup>32</sup>

In order to fulfil the mandate, the NCDMA was vested with the power to invite officials and experts from Government bodies, financial institutions, consultancy organisations, non-governmental organisations, civil society, the legal profession, industry and commerce for technical and professional inputs.

The NCDMA receives projects for evaluation and approval as per the guidelines and general criteria laid down in the relevant rules and modalities pertaining to CDM in addition to the guidelines issued by the CDM Executive Board and Conference of Parties serving as Meeting of Parties to the United Nations Framework Convention (COP/MOP) on Climate Change.

The evaluation process of CDM projects includes an assessment of the probability of successful implementation of the projects and evaluation of extent to which the project

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<sup>31</sup> The Environment (Protection) Act, 1986, No.29 of 1986, 23<sup>rd</sup> May 1986, <http://envfor.nic.in/legis/env/env1.html> (accessed on 4 May 2012)

<sup>32</sup> Bhat, M., *The CDM In India: Institutional and Legal Issues*, in *Improving the Clean Development Mechanism* 166 (Mehling, M., Merrill, A., and Upston-Hooper, K., (eds) Berlin: Lexxion Publisher, 2011)

can meet the sustainable development requirements. However, the NCDMA can recommend certain additional requirements to ensure that the project proposals meet the national sustainable development priorities and comply with the legal framework so as to ensure that the projects are compatible with the local priorities and all the stakeholders have been duly consulted.

The Authority ensures that in the event of project proposals competing for the same source of investment, projects with higher sustainable development benefits are given higher priority. The Authority also carries out the financial review of project proposals to ensure that the project proposals do not involve diversion of official development assistance in accordance with modalities and procedures for Clean Development Mechanism and make sure that the market condition of the CDM project is not conducive to under-valuation of CERs, especially for externally aided projects.

The Member-Secretary of the NCDMA is responsible for all day-to-day activities of the Authority. He/she shall also be responsible for constituting committees or sub-committees for coordinating and examining the project proposals in detail.<sup>33</sup> The Authority carries out activities to make sure that the project developers have reliable information relating to every aspects of CDM, which includes forming databases of organisations that are designated for carrying out validation of CDM project proposals, monitoring and verification of project activities, and to collect, compile and publish technical and statistical data relating to CDM initiatives in the country.<sup>34</sup>

In comparison with other regulatory agencies, the speed, efficiency and low transaction cost of India's CDM approval process has been remarkable. But even then, nearly 40 per cent of CDM projects around the world were rejected by CDMEB, which were based in India, subsequently raising questions upon the soundness of the first-line review by NCDMA.<sup>35</sup>

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<sup>33</sup> *Ibid*

<sup>34</sup> National CDM Authority, Ministry of Environment & Forest, Government of India, <http://www.cdmindia.gov.in/constitution.php> (accessed on 21st April 2012)

<sup>35</sup> Rajan, S. C., *Vested or public interest? The case of India*, Global Corruption Report – Climate Change 57, (Transparency International, London, UK: Earthscan, 2011)

### 3.1.1. India's GHGS Inventory

In May 2010, India released the Report on Greenhouse Gas Inventory 2007. This was the long anticipated first comprehensive inventory of India's GHG emissions since it has prepared its GHGs inventory for the base year 1994.<sup>36</sup> "This assessment provides information on India's emissions of Greenhouse gases (Carbon Dioxide [CO<sub>2</sub>], Methane [CH<sub>4</sub>] and Nitrous Oxide [N<sub>2</sub>O]) emitted from anthropogenic activities at national level from five sectors as such, Energy, Industry, Agriculture, Waste and Land use, land use change & Forestry (LULUCF)."<sup>37</sup>

Due to effective policies and their proper implementation, the GHG emissions intensity of India's GDP declined by more than 30% during the period 1994-2007. In the year 2007, USA and China's emissions were almost four times higher than that of India.<sup>38</sup>

### 3.1.2. Additionality in India

At a seminar on CDM in Mumbai, Member Secretary of the National CDM Authority publicly admitted that the National CDM Authority takes the "project developer at his word" for clearing the 'additionality' barriers. CDM projects in India do not have to be validated or verified to get host country approval, while both processes are mandatory to get the project registered with the UNFCCC. For this reason, Indian projects account for 44% of the total projects rejected by the CDM Executive Board.<sup>39</sup>

Most of the India's CERs come from projects that are aimed to phase out the highly potent GHG HydroFluoroCarbons-23 (HFC). Generally the HFC-23 projects are problematic, because they create perverse incentives to actually encourage the production of this gas to make a profit on its subsequent reduction under the CDM. As

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<sup>36</sup> Reddy, S., *Increasing Transparency: India Releases GHG Inventory (May 14, 2010)*, [http://switchboard.nrdc.org/blogs/sreddy/increasing\\_transparency\\_india.html](http://switchboard.nrdc.org/blogs/sreddy/increasing_transparency_india.html), (accessed on 21st April 2012)

<sup>37</sup> Executive Summary, *India: Greenhouse Gas Emission 2007*, Indian Network for Climate Change Assessment (INCCA), Ministry of Environment and Forest, May 2010, [http://moef.nic.in/downloads/public-information/Report\\_INCCA.pdf](http://moef.nic.in/downloads/public-information/Report_INCCA.pdf) (accessed on April 21st 2012)

<sup>38</sup> *Op.cit.*

<sup>39</sup> Hot Air- Carbon Trading, climate politics and other random musings, *Wikileaks and the CDM: no "additionality" in India*, 5 September 2011, <http://thisisoscar.blogspot.co.uk/2011/09/wikileaks-and-cdm-no-additionality-in.html> (accessed on 23rd April 2012)

a result it violates the principle that emission reductions must be *additional* to a business-as-usual.

According to the Indian Government, the role of the Authority within CDM is limited to the ensuring that the CDM project activities in the country are undertaken voluntary and that they promote sustainable development within the nation. Therefore in general, the Indian Authority does not concern itself with the question of additionality of the project cycle.<sup>40</sup>

#### **4. POLICIES INFLUENCING CDM GROWTH IN INDIA**

India is shelter to nearly one-third of the world's poor. Almost 275 million people are mostly dependent on natural resources and fragile sectors for their livelihood. In furtherance to the *Bali Action Plan*<sup>41</sup> to meet some of the Climate Change implications, India launched the *National Action Plan on Climate Change*<sup>42</sup> (NAPCC) to outline a national strategy to address climate change mitigation and adaption. The policy and measures taken for the expansion of the renewable energy sector in the country also in turn contributed to growth and success of CDM projects in India at large.

##### **4.1. National Action Plan on Climate Change**

The NAPCC highlighted the importance of international cooperation in mitigating Climate Change and expressed CDM as an example of cooperation between developing and developed nations in dealing with Climate Change. The NAPCC has carried out a review of the CDM which provide an important insight into the institutional issues afflicting the carbon market in India and points out some of the steps that are required to run the market efficiently.<sup>43</sup>

The Prime Minister released the NAPCC on 30<sup>th</sup> June 2008 which comprises eight priorities (the National Missions) that represent the country's long-term strategy for

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<sup>40</sup> Bhat, M., *Supra* note 32

<sup>41</sup> UNFCCC, Report of the conference of the parties on its thirteenth session, held in Bali from 3 to 15 December 2007, 1/CP.13, U.N. Doc. FCCC/CP/2007/6/Add.1 (March 14 2008) [hereinafter Bali Action Plan], <http://unfccc.int/resource/docs/2007/cop13/eng/06a01.pdf> (accessed on 04<sup>th</sup> May 2012)

<sup>42</sup> Prime Minister's Council on Climate Change, Government of India, *The National Action Plan on Climate Change*, June 2008, <http://www.pmindia.nic.in/Pg01-52.pdf>, (accessed on 21<sup>st</sup> April 2012)

<sup>43</sup> Bhat, M., *Supra* note 32

achieving its climate related goals. The eight National Missions are: 1. National Solar Mission, 2. National Mission for enhanced Energy Efficiency, 3. National Mission on Sustainable Habitat, 4. National Water Mission, 5. National Mission for Sustaining the Himalayan Ecosystem, 6. National Mission for a “Green India”, 7. National Mission for Sustainable Agriculture, and 8. National Mission on Strategic Knowledge for Climate Change.

The plan incorporates a commitment to ensure that India’s per capita GHG emissions level never exceeds than those of the developed countries at any point of time in future. The plan sought to create balance between the need to maintain steady and higher economic growth in one hand and on the other hand to mitigate and adapt to the effect of the climate change. Apart from these objectives, the plan also seeks to identify measures that promote development priorities simultaneously addressing the threats posed by climate change effectively.

The Government of India has also requested each state government to prepare a *State Action Plan on Climate Change* (SAPCC). These Action Plans primarily focus on adaptation to the impacts of climate change on various sectors in the respective states.<sup>44</sup>

#### **4.2. Contribution of Renewable Energy Sector**

Since the early 1980s, India started to develop its renewable energy infrastructure. According to Ernst & Young, today India holds fourth position in the world for the most suitable destination for investment in the renewable energy sector, followed by China, USA and Germany.<sup>45</sup> The entire institutional framework for the development of the renewable energy sector ranges from technology development, human resource development, to R&D. Financial institutions also significantly contributed in the promotion of CDM projects in the country.

All the project categories mentioned for small-scale CDM project activities fall under either Type: 1- Renewable Energy Projects; Type: 2- Energy Efficiency Improvement

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<sup>44</sup> State Action Plan on Climate Change, 29 Aug 2011, <http://chimalaya.org/2011/08/29/state-action-plans-to-be-prepared-on-climate-change/> (accessed on 21<sup>st</sup> April 2012)

<sup>45</sup> Ernst & Young, *All Renewable Index* February 2012, <http://www.ey.com/GL/en/Industries/Power---Utilities/RECAI-Feb-2012---All-renewable-indices#> (accessed on 02<sup>nd</sup> May 2012)

Projects; or Type: 3- Other Projects. Activities are very well covered by the Indian renewable energy infrastructure as well as in the policy framework.<sup>46</sup>

After its 32<sup>nd</sup> meeting held in 2007, the CDMEB decided that a project activity under a Programme of Activity (POA) can be registered as a single CDM project activity, subject to the use of approved baseline and monitoring methodologies used. This has given an opportunity for de-centralised renewable energy systems to be covered under large scale CDM projects. Without any further delay the Ministry of New and Renewable Energy (MNRE), Government of India conducted a study to understand and develop a framework for programmatic CDM projects in renewable sectors. The study mainly concentrated the areas of solar water heating, solar cooking, biogas plants for individual families, medium and large size biogas plants, cooking stoves, application of biomass in industry and village electrification. The study also tried to develop an understanding of additionality of projects, sector specific baseline and validation and monitoring methodologies.<sup>47</sup>

Up to November 2011 there were 738 CDM projects registered with the Executive Board in India and there are another 1022 projects which are at the end or in the post-validation stage. Out of the total 738 registered CDM projects, the majority are renewable based projects, whereas Wind Power accounts for 233 projects, followed by Biomass-180 projects, Hydro Power-83, Energy Efficiency and Waste gas/heating Utilization has 75 and 70 projects respectively.<sup>48</sup>

## 5. CONCLUSION

India was one among the first countries to respond quickly towards Kyoto Protocol's flexibility mechanism and constituted NCDMA to comply with the Kyoto Protocol procedures for CDM. India's renewable energy sector has been developing since the

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<sup>46</sup> (COP/MOP), *Decision 4/CMP.1: Guidance relating to the clean development mechanism, Annex-II: Simplified modalities and procedure for small-scale clean development mechanism project activities*, APPENDIX-B, U.N.Doc. FCCC/KP/CMP/2005/8/Add.1 52, March 30 2006, <http://unfccc.int/resource/docs/2005/cmp1/eng/08a01.pdf#page=30> (accessed on 4<sup>th</sup> May 2012)

<sup>47</sup> Framework for Programmatic CDM Projects in Renewable Energy, MNRE, Government of India, May 2009, [http://www.mnre.gov.in/file-manager/UserFiles/fp\\_cdm\\_renewableenergy.pdf](http://www.mnre.gov.in/file-manager/UserFiles/fp_cdm_renewableenergy.pdf) (accessed on 29<sup>th</sup> April)

<sup>48</sup> Slariy, M.K., *Viability of CDM Projects in India: A Study of Chanju CDM Project in Chamba District of Himachal Pradesh India*, <https://www.uni-hohenheim.de/fileadmin/einrichtungen/uplands2012/fullpaper/Slariya.CDM.Projects.pdf> (accessed on 29<sup>th</sup> April 2012)



early 1980s and provided a favourable ground for CDM to grow further. It was a blessing in disguise as under the institutional framework and policy regime for renewable sector, CDM projects received significant priority.

Although India achieved remarkable success in hosting Clean Development Mechanism, question started rising around the world regarding additionality of the country's CDM projects. The country must take serious attempt to overcome the crisis; otherwise the very object of the UNFCCC will be frustrated. It is not a race to host maximum clean development projects; rather the race is for minimising GHG emissions. To understand the additionality scenario of India properly it requires further study of literature. There are constraints in regard to literature relating to India's additionality.

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